



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/599,172

09/21/2006

Jeon-keun Oh

20345/0205419-US0

5307

7278

7590

01/22/2009

DARBY & DARBY P.C.

P.O. BOX 770

Church Street Station

New York, NY 10008-0770

EXAMINER

SCULLY, STEVEN M

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

01/22/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/599,172	OH ET AL.	
	Examiner	Art Unit	
	Steven Scully	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>09/21/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1795

HIGH POWER LITHIUM UNIT CELL AND HIGH POWER LITHIUM BATTERY PACK
HAVING THE SAME

Examiner: Scully S.N.: 10/599,172 Art Unit: 1795 January 13, 2009

Election/Restrictions

1. Applicant's election without traverse of Group I, drawn to claims 1-8, in the reply filed on September 29, 2008 is acknowledged. Claims 9-13 have been canceled without prejudice or disclaimer of the subject matter recited therein, as being drawn to a non-elected invention. Accordingly, claims 1-8 remain pending in the application.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Hisamitsu et al. (US2004/0038124).

With respect to claim 1, Hisamitsu et al. disclose a laminate cell, such as a lithium ion secondary battery, having a power generating element formed by sequentially stacking positive and negative electrode plates while interposing separators therebetween; a positive tab connected to the positive electrode plates; a negative tab connected to the negative electrode plates. The tabs are drawn outward from end edges of long sides of the cell package. See abstract; [0041]. This is done so that the

Art Unit: 1795

internal resistance of the cell is reduced by having a shorter conductive path to the terminal. See [0038].

With respect to claim 2, Hisamitsu et al. disclose the terminals to protrude from opposite directions. See Figure 4A.

With respect to claim 3, Hisamitsu et al. disclose tabs which are larger than half the length of the side and smaller than the full length of the side. See Figure 4A.

With respect to claim 6, Hisamitsu et al. disclose the terminals are welded to the collector plates. See [0031].

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. (US2003/0054239) in view of Hisamitsu et al. (US2004/0038124).

With respect to claim 1, Watanabe et al. disclose a lithium unit cell comprising an anode and a cathode. A cathode and an anode terminal are each connected to the unit cells. See [0046]; Figures 3 and 10. Further, Watanabe et al. disclose a collector and a collector weld portion. See [0007]. Watanabe et al. do not explicitly state that a separation film is inserted between the anode and cathode place for providing electric insulation. However, it is the position of the examiner that a separator is inherent in the invention of Watanabe et al. because they disclose a "unit cell" which by definition comprises an anode, a cathode, an anode current collector, a cathode current collector and a separator. The separator is required in order for the operation of a battery to occur because it prevents short circuits which would occur otherwise leading to no energy output. Inherency is not established by probabilities or possibilities. *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999).

Watanabe et al. are silent regarding the terminals protruding from either of two long sides of four sides of the rectangular anode/cathode plates. Hisamitsu et al. disclose a laminate cell having a power generating element formed by sequentially stacking positive and negative electrode plates while interposing separators therebetween; a positive tab connected to the positive electrode plates; a negative tab connected to the negative electrode plates. The tabs are drawn outward from end edges of long sides of the cell package. See abstract. This is done so that the internal resistance of the cell is reduced by having a shorter conductive path to the terminal. See [0038]. Therefore, it would have been obvious to one of ordinary skill in the art at

Art Unit: 1795

the time of the invention to extend the terminals from the long edges of the battery because Hisamitsu et al. teach that it reduces the internal resistance of the cell.

With respect to claim 2, Watanabe et al. disclose the terminals to protrude from opposite directions. See Figure 3.

With respect to claim 3, Watanabe et al. disclose tabs which are larger than half the length of the side and smaller than the full length of the side. See Figure 3.

With respect to claim 4, Watanabe et al. disclose the terminals to protrude from the same direction. See Figure 10.

With respect to claim 5, Watanabe et al. disclose tabs which are smaller than half the length of the side and that can be approximated as about 1/4 of the length. See Figures 9 and 10. Further, it is the position of the examiner that the specification does not provide evidence for the criticality of the width of the terminals.

With respect to claim 6, Watanabe et al. disclose the current collectors to have a collector weld portion. See [0007]. Therefore, the terminals may be connected to the current collector through welding to this area.

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hisamitsu et al. (US2004/0038124) as applied to claims 1-3 and 6 above, and further in view of Kelley et al. (US2004/0191632).

With respect to claim 7, Hisamitsu et al. are silent regarding a coating on the cathode plate connecting part and the anode plate connecting part. Kelley et al. disclose a battery having a tab (21) formed on a current collector (20) wherein the tab is

Art Unit: 1795

coated with a conductive material having a metal that is more conductive than the current collector to provide structural support for the tab (21) and create a suitable electrical connection capable of handling high currents. See [0025]. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a coated layer between the current collector and the tab because Kelley et al. disclose it to create a suitable electrical connection capable of handling high currents.

8. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. (US2003/0054239) in view of Hisamitsu et al. (US2004/0038124) as applied to claims 1-6 above, and further in view of Kelley et al. (US2004/0191632).

With respect to claim 7, Watanabe et al. and Hisamitsu et al. are silent regarding a coating on the cathode plate connecting part and the anode plate connecting part. Kelley et al. disclose a battery having a tab (21) formed on a current collector (20) wherein the tab is coated with a conductive material having a metal that is more conductive than the current collector to provide structural support for the tab (21) and create a suitable electrical connection capable of handling high currents. See [0025]. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a coated layer between the current collector and the tab because Kelley et al. disclose it to create a suitable electrical connection capable of handling high currents.

Art Unit: 1795

9. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hisamitsu et al. (US2004/0038124) as applied to claims 1-3 and 6 above, and further in view of Brodd (US5,498,490).

With respect to claims 7 and 8, Hisamitsu et al. are silent regarding an adhesive being used to connect the terminals to the current collectors. Brodd discloses a battery having current collectors which are adhered to electrodes (i.e. terminals) using a resistive adhesive layer (41) such as a conductive plastic. By doing so, the thickness and resistivity of the adhesive layer are controlled so as to introduce into the current flow path of each cell a controlled resistance. See column 3, lines 39-58. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use an adhesive coating between the current collector and the terminal because Brodd teaches it to allow for the value of the resistance to be controlled.

10. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. (US2003/0054239) in view of Hisamitsu et al. (US2004/0038124) as applied to claims 1-6 above, and further in view of Brodd (US5,498,490).

With respect to claims 7 and 8, Watanabe et al. and Hisamitsu et al. are silent regarding an adhesive being used to connect the terminals to the current collectors. Brodd discloses a battery having current collectors which are adhered to electrodes (i.e. terminals) using a resistive adhesive layer (41) such as a conductive plastic. By doing so, the thickness and resistivity of the adhesive layer are controlled so as to introduce into the current flow path of each cell a controlled resistance. See column 3, lines 39-

Art Unit: 1795

58. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use an adhesive coating between the current collector and the terminal because Brodd teaches it to allow for the value of the resistance to be controlled.

Contact/Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Scully whose telephone number is (571)270-5267. The examiner can normally be reached on Monday to Friday 7:30am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on (571)272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. S./

Application/Control Number: 10/599,172

Page 9

Art Unit: 1795

Examiner, Art Unit 1795

/Dah-Wei D. Yuan/

Supervisory Patent Examiner, Art Unit 1795